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TE-2

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CNL Assignment - I

Q.1. Explain specification & functionality of hardware components used RJ-45 connectors, switch, CAT-5 cable, cable tester, crimping to

→1. RJ-45 connector :

RJ is a standardised physical network interface for connecting telecommunication or data equipment. The physical connectors that RJ's use are mainly of modular connector & 50 pin miniature ribbon connector types. The most common twisted pair connector is 8-pos, 8-contact (8P8C) modular plug & jack commonly referred to as an RJ-45 connector.

- Specifications:
  1) 8P8C RJ-45 connector (8-pins)
  2) Compatible with all CAT & UDP cables.

2. Switch:

They're used for re-directing traffic. It's a device in computer network that connects other devices together. Multiple data cables are plugged into a switch to enable communication b/w diff network devices. They manage flow of data across a network.

3. CAT-5:

Its a twisted pair cable commonly used with ethernet networks.

Specifications:

1) 100 MHz bandwidth
2) 24.0 dB attenuation
3) 100 ohms impedance
4) high speed data transmission

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4. cable tester:

Its a tool used for testing whether there is no cut in b/w two terminals & identify type of pair crimp.

5. Crimping tool:

A crimping tool is a device used to conjoin two pieces of metal by deforming one or both of them to hold each other. The result of tool's work is crimp.

Q.2. What's a topology? Explain types.

→ Physical topology of network type refers to config of cables, comp, & other peripherals. Their types are as follows:

1) Bus : Each node is connected to one main communication line. With this arrangement; even if one of node goes down, the remaining func. normally.

2) Star: It comprises several nodes connected to a central hub. Messages from individual nodes pass through hub.

3) Ring: Connected nodes form a ring like structure. Data is passed in tokens which travels ring, from one node to another, until it reaches its destination.

4) Mesh: All nodes are connected to every other node in network with a point to point link. This makes it possible for data to be transmitted from any one node to all other nodes.

5) Hybrid / tree topology:

This combines characteristics of both bus & star topologies.

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Q.3. Explain functionality of bridge, HUB, router, Brouter.

→ 1) Bridge:

Its comp network device which creates a single aggregate network from multiple communication networks/ segment This func is called network bridging.

2) HUB:

Its a networking device which connects multiple devices in network. Generally used to connect computers in LAN. It comprises many ports in it. A comp which intends to connect to network is plugged into one of these ports.

3) Router:

Hardware device which is used to connect a LAN with an internet connection. It's used to receive, analyse & forward incoming packets to another Network works in Layer 3 of OSI model.

4) Brouters:

Network device which works as a bridge & a router. It routes packets for known protocols & simply forwards all other packets as a bridge would. Operation is done at network layer for routable protocols & at data link layer for non-routable protocol. It acts as a bridge in a network & a router in an internetwork.

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Q.4. Write down the command to install wire shark too. Explain

→ Command : "Sudo apt install wireshark"

- Wireshark is world's leading traffic analyser & an essential tool for any security professional or systems administrator. This free software lets you analyse network traffic in real time. & is often best tool for troubleshooting issues on a network. It can help troubleshoot dropped packets, Latency, malicious activity on a network.